Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A glass matrix composition consisting essentially by mol percent of:

$56 < SiO_2 < 75$;

$11 < BaO < 30$; and

$2 < MgO < 14$, said composition having the characteristics of being chemically resistant to oxidizing and reducing conditions encountered in sealing solid oxide fuel cells and the matrix composition remaining in a glassy state after sealing at temperatures up to 1200°C.

2. (currently amended) The glass matrix composition of claim 1, consisting essentially by mol percent of:

$60 < SiO_2 < 75$;

$15 < BaO < 20$; and

$7.5 < MgO < 12.5$.

3. (currently amended) A glass matrix-ceramic particulate composite consisting essentially by mol percent overall of about:

$55 < SiO_2 < 65$;

$5 < BaO < 15$;

$25 < MgO < 35$; and

a forsterite phase consisting of Mg_2SiO_4.

4. (currently amended) The glass matrix-ceramic particulate composite of claim 3, consisting essentially by mol percent overall of about:

$57 < SiO_2 < 63$;

$7 < BaO < 13$;

$27 < MgO < 33$; and

a forsterite phase consisting of Mg_2SiO_4.

5. (currently amended) The glass matrix composition of claim 1, consisting essentially by mol percent of:

$56 < SiO_2 < 75$;

$11 < (BaO + SrO) < 30$; and

$2 < MgO < 14$, said composition having the characteristics of being chemically resistant to oxidizing and reducing conditions encountered in sealing solid oxide fuel cells and the matrix composition remaining in a glassy state after sealing at temperatures up to 1200°C.

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6. (currently amended) The glass matrix-ceramic particulate composite of claim 3, consisting essentially by mol percent overall of:

$55 < SiO_2 < 65$;

$5 < (BaO + SrO) < 15$; and

$25 < MgO < 35$.

7-12. (previously withdrawn)

13. (new) A glass matrix composition consisting essentially by mol percent of:

$56 < SiO_2 < 75$;

$11 < BaO < 30$; and

$2 < MgO < 14$.

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14. (new) A glass matrix-ceramic particulate composite consisting essentially of:

a glassy phase consisting of (by mol percent)

$56 < SiO_2 < 75$;

$11 < BaO < 30$;

$2 < MgO < 14$; and

between 15 and 40% by weight (between 5 and 30 mol percent) of a forsterite phase consisting of Mg_2SiO_4.

15. (new) A high operating temperature sealed assembly between high thermal expansion solid components comprising:

a seal-forming material having a glassy matrix phase and a crystalline phase, the overall composition consisting essentially by mol percent of about:

$55 < SiO_2 < 65$;

$5 < BaO < 15$;

$25 < MgO < 35$.

16. (new) The sealed assembly of claim 15, further comprising:

an ionic-conducting stabilized material selected from the group consisting of zirconia, ceria, yttria stabilized zirconia (YSZ), magnesia-calcia stabilized zirconia, and doped ceria;

composite porous cermets selected from the group consisting of stabilized zirconia, ceria and metals selected from the group consisting of Ni, Cu, Ag, Au, stainless steel, and chromium alloys;

electronically-conducting materials selected from the group consisting of strontium-doped lanthanum manganite (LSM) strontium doped lanthanum chromite and oxidized chromium-containing metal alloys;

mixtures of the glass matrix with metals selected from the group consisting of Ni, Cu, Ag, Au, stainless steel, and chromium alloys; and

electrically-insulating structural materials selected from the group consisting of alpha-alumina, spinel, and forsterite.

17. (new) The sealed assembly of claim 15, wherein the seal-forming material provides an essentially gas-tight structure for separation of respective flows in an anode and a cathode of an electrochemical device, the device being selected from the group consisting of a solid oxide fuel cell, an oxygen electrolyzer, an oxygen-ion conductor-based chemical gas sensor, and a NO_x-removing electrocatalyst.

18. (new) A high temperature seal between components made from yttria-stabilized zirconia comprising:

a sealing glass able to tolerate extended operation at temperatures above 850°C and having a sufficiently high coefficient of thermal expansion to match that of yttria-stabilized zirconia.

19. (new) A glass matrix-ceramic particulate composite consisting essentially of:

a glassy phase consisting of (by mol percent)

$56 < SiO_2 < 75$;

$11 < BaO < 30$;

$2 < MgO < 14$, said composition having the characteristics of being chemically resistant to oxidizing and reducing conditions encountered in sealing solid oxide fuel cells and the matrix composition remaining in a glassy state after sealing at temperatures up to 1200°C; and

between 15 and 40% by weight (between 5 and 30 mol percent) of a forsterite phase consisting of Mg_2SiO_4.

20. (new) The glass matrix-ceramic particulate composite of claim 19, consisting essentially of:

a glassy phase consisting of (by mol percent)

$67 < SiO_2 < 75$;

$10 < BaO < 20$;

$7.5 < MgO < 12.5$; and

between 20 and 35 percent by weight (between 10 and 25 mol percent) of a forsterite phase consisting of Mg_2SiO_4.